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Avenues to Success-Developing a Thriving Technology Education Program

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Greenfield-Central High School, Greenfield, Indiana Across the USA, technology education has faced many challenges over the past several decades. Educational changes and reform at all levels seem to have had a positive effect on the required classes or "core" courses. As a result, "elective" courses seem to be delegated to a secondary role in a student's education.

Several years ago a friend asked if I thought it was possible to maintain a thriving technology education program with all the changes that have been taking place over the last ten years. He said that, with outside forces such as NCLB, statemandated exit exams, and the push for students to enroll in more math and science, technology education was becomingan afterthought in some schools.

At a recent ITEA Conference, fellow teacher Trent Taylor and I explained in detail the almost 30 year evolution of the technology education program at Greenfield-Central High School, Greenfield, Indiana. Through the years, the curriculum, students, teachers, and administrators have changed, but one constant remains: the positive attitude that the community has for technology education.

Our school's journey to develop a thriving technology education program has taken many twists and turns. We have had numerous challenges that have affected both the program and the methods we have used to instruct our students. The following are some of the influences that we have encountered and how we adapted to them.

Change in School Administration-Learning to Act as a Team

In life there are times you can point to the exact moment that a movement or change occurs. In our department's case, it was the hiring of a visionary high school principal, Mr. Robert Albano. Mr. Albano came to our school after being an administrator at one of Indianapolis's finest vocational career high schools. At the time Mr. Albano was hired, the GCHS technology education curriculum was a disorganized hodgepodge of industrial arts- and industrial technology-titled courses. Students enrolled in the courses were learning, and good things were taking place but, on the whole, the department did not have a vision or direction.

Getting Organized

Mr. Albano was a master at organization, and one of the very first things he taught us was how to run a department meeting, for which he required the following:

* A detailed meeting agenda

* A reading of the minutes of the previous department meeting

* Assignment of short- and long-term tasks to be completed by members of department

* Written reports of progress made on short- and long-term tasks

* Rigid department meeting time limits

At our first department meeting that fall Mr. Albano pointed out many of our strengths and deficiencies. He then proposed that, before we worry about a new curriculum or revamped facilities, we should develop a vision of the future by doing the following:

* Develop a department mission statement

* Cultivate a department-wide vision built around a new mission statement

* Develop a department 3-5 year plan of improvement

* Start a school advisory committee for the department made up of:

* Technology department members

* Guidance staff

* One administrator

* One teacher from each of the math, science, and language arts departments

* Two students enrolled in the department

* Meet at least twice a year

* Start a community advisory committee for the department made up of:

* Technology department chairperson

* Technology department member

* Guidance department chairperson or member

* One administrator

* One or two parents with students in the technology program

* At least three community\business members

* Two students enrolled in the department

* Meet at least twice a year

Developing and Enhancing the Curriculum

Indiana is fortunate to have an articulated technology education curriculum model created

through the Indiana Department of Education's Technology Education Curriculum Committee. This curriculum offered course titles and a foundation curriculum that teachers could model in their own classrooms. But, while the written guide provided a direction, the final course curriculum had to be developed by the instructors and then enhanced by the resources they used or created.

Mr. Albano was a true believer in providing time and monies for teachers to have the opportunity to grow professionally. As the technology teachers worked on curriculum, they also looked at the type of facility they would need to ensure that students were free to work and learn to their potential. To make this possible, he ensured that teachers were provided:

* Extra time with pay during the school day and summer to write curriculum maps, individual course unit plans, department goals, and individual teacher goals.

* Time for the technology teacher "team" to gain professional development by providing monies so they could attend state and national technology education conferences.

* Time to visit state universities/colleges and high schools that were known for their best practices and exemplified quality technology education programs.

* Monies for the technology education teacher "team" to attend a local university to gain expertise in the understanding of computer software as well as professional development activities that explained best practices for teaching to groups and how to develop rubrics.

Mr. Albano also stressed that, to have real change, the public and the students had to "see" it. He made teachers see that the way they had done things in the past was not the way they would be done in the future. As a result, labs and classrooms had the old battleship gray and green painted over with beige, red, yellow, and blue. Old governmentsurplus machines were either repaired and painted or sold off for scrap. Then he went to the guidance staff and strongly recommended that females be encouraged to enroll in technology courses. Over the next few years, people realized that technology education was evolving into something more than just "shop."

Making the Connection With the Guidance Staff

As pointed out earlier, when Mr. Albano arrived he made it clear to the entire high school teaching staff that having a strong technology education program was important to having a complete high school. His vision and leadership provided the opportunity for the technology education staff to have direct meetings with the guidance staff. At these meetings teachers were provided the opportunity to explain how the department and curriculum were changing. Another benefit of this face-to-face meeting was having guidance become partners on the technology education "team."

It has been several years since Mr. Albano moved on to another job, but the connections with guidance remain. To this day, guidance staff members are invited to:

* Join in a working lunch or dinner at which it is emphasized how important they are to the success of the technology department and program.

* Attend one of the monthly department meetings.

* Attend a technology education conference.

* Serve as a chaperone on student-centered trips such as those necessary for the technology

student association.

* Be included on visits to other successful technology education programs.

* Spend a day or period in a technology classroom to observe the great things our students create every day.

* Serve as judges at a student competition or student organization function.

Making the Connection With the Students

The transition from industrial arts to technology education was probably most difficult for students enrolled in the IA courses at the time. When the underclassmen left school in the spring and then returned that fall, the old shop facility and curriculum no longer existed. Many had a difficult time understanding that they would no longer be working on the same activities as they had the previous year. Those first two or three years were an adjustment for the students. The teachers finally learned they had to do a better job explaining that the new changes were designed to increase the rigor and relevance in their classroom. Here are some of the steps taken to help the students understand why the changes were necessary:

* Field trips to local industries and businesses where students could "see" the skills they were modeling in action.

* Inviting students who previously graduated and were working in industry or going to college to speak to the students about the skills they needed when they left high school.

* Explaining to the students the need for knowledge and skills that will allow them to be successful in occupations that may not exist today.

* Inviting local business leaders to make presentations on the attributes they were looking for in prospective employees.

* Showing films and videos of career occupations that would be available to them in the twenty-first century.

* Reminding students that almost 70 percent of their time in class was still hands-on in a laboratory.

* Establishing extracurricular activities such as Technology Student Association club events, Super Mileage vehicles, and robotics competitions where they are exposed to information and activities found outside the classroom. Connecting With New School Administration, Parents, and the Community

After Mr. Albano's departure, an administrator with reservations concerning the need and importance of technology education arrived. In fact, during our first meeting in the fall, one of the first challenges he made to our department was to say, "I have seen several new technology education programs and I have not been that impressed with what I have seen." He continued to say that he felt that, if we were going to have a technology education program at his high school, our department members would have to prove it meets the needs of students.

After thinking about this administrator's concerns and realizing what the ramifications of his remarks could have on the future of our department, we realized that we had to develop a plan to promote the good things our students do. We did this by first determining who our clients were:

* Students

* Parents

* Other high school staff

* School board

* School administration

* Taxpayers and community members

* Business\industry leaders

* Universities and colleges

The next step was to put our promotion plan into action by doing the following:

* To all clients:

* Students and technology teachers developed a department website,

* Students and technology teachers developed quality handouts and other promotional materials to be given to all clients at appropriate occasions,

* Newspaper, television, and radio

* Technology students' pictures appeared in local newspaper at least once a month.

* Showcase students on local cable outlet at least twice a year.

* Invite media to cover construction of several after-school student activities.

* Showcase student activities on the school radio station or school newspaper.

* School board, administration, and guidance department

* Instructors attend school board meetings with students,

* Instructors have students present information about their achievements at school board meetings,

* Invite them to be judges at a local student competition,

* Invite them to attend after-school functions,

* Submit articles to be in administration parents' newsletters.

* Community connections

* Technology students should be visible in the community:

* At local community festivals

* At annual county fair

* Community service for senior citizens

* Community service project such as cleaning up local park

* Participating in school events such as Homecoming festivities.

* Taxpayers\community members\business\industry leaders

* Student presentations about the curriculum and program at:

* Service groups

* PTAs

* Incoming freshman orientation

* City council meetings

* Open houses

* Eighth grade guidance counselor's meetings

* Presentation in ninth grade career course

* Have students involved in after-school student activities

* Technology Student Association

* FIRST Robotics

* Super Mileage vehicle competitions

* College competitions

* Vex Robotics

* Rube Goldberg

* Other high school staff

* Start cross-curricular projects:

* Mousetrap car - science and math

* Rockets - science and math

* Portfolios - language arts

* Research papers - language arts

* Manufacturing - family consumer science

* Welding - agriculture sciences

* Manufacturing\transportation - special needs

* Summer enrichment programs

* Robotics\engineering, construction

* Transportation, communications, and manufacturing

* Other community connections

* Invite local leaders from various professions to speak or teach a lesson to your students from occupations found in:

* Construction

* Manufacturing

* Amateur radio

* Engineering

* Government officials

* Transportation and logistics

* Another connection is to solicit donations from contractors and businesses

* Scrap metal

* Scrap wood

* Mismixed paint

* Scrap construction materials

* Prepared food (pizza, chicken, Mexican, etc.)

Over the last 20 years, the Greenfield-Central High School Technology Education Program has been recognized as Indiana's Program Excellence winner three different times. Today GCSC Superintendent, Dr Linda Geliert, G-CHS Principal Mr. Steve Bryant, technology education teachers Mark Holzhausen, Trent Taylor, and I are continuing to develop a thriving technology education program that is adapting to the needs of students. Many years ago we learned that change will not happen overnight, and that nothing can be taken for granted when creating a

thriving program. We realize that success is not based on the actions of an individual, but rather a "team" that remembers where they have been and has a vision of where they want to go.

A student drawing of Greenfield-Central's PLTW room, which will be completed in 2009.

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